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ABSTRACT

The purpose of the research was to determine the effects of direct and indirect teaching style on elementary students ranked "high" and "low" in social-emotional development. Twenty teachers who demonstrated direct and indirect teaching styles were identified; 94 elementary students were ranked high and low, based on five measures of social-emotional development. The review of research indicated that an educational environment compatibly matched with student development would produce significant gains. A 2 x 2 design was employed with "matched" (direct-low and indirect-high) and "mismatched" (direct-high and indirect-low) groups. Reading instruction was conducted daily for a minimum of 20 days. Observation and paper-and-pencil techniques were used to collect in-class data. It was concluded that students demonstrated greater cognitive and affective gains when instructed by teachers whose styles were consistent with the student's level of development. Recommendations for education and research were derived. (A 38-item bibliography and appendixes of related research material are included.)
(Author/MJM)

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FINAL REPORT

Project No. 2-D-041
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THE EFFECT OF TEACHING STYLES ON STUDENT BEHAVIORS AS RELATED TO SOCIAL-EMOTIONAL DEVELOPMENT

February, 1973

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ABSTRACT

The Effect of Teaching Styles on Student Behaviors
As Related to Social-Emotional Development

The purpose of the research was to determine the effect of direct and indirect teaching style on elementary students ranked "high" and "low" in social-emotional development. Twenty (20) teachers who demonstrated direct (N=10) and indirect (N=10) teaching styles were identified; ninety-four (94) elementary students were ranked high (n=46) and low (n=48) based on five measures of social-emotional development.

The review of research indicated that an educational environment (style) compatibly matched with student development would produce significant gains. A 2 x 2 design was employed with "matched" (direct-low and indirect-high) and "mismatched" (direct-high and indirect-low) groups. Reading instruction was conducted daily (15-30 minutes) for a minimum of twenty (20) days. Observation and paper-and-pencil techniques were used to collect in-class data.

The null hypothesis stated that there would be no interaction effects for three dependent variables: student achievement, time at attention to task, and affective perception. ANOVA was used to test the hypothesis; independent t-test were used for post-hoc analysis.

All interaction effects were significant: achievement ($p<.01$), attention to task ($p<.05$), and affective perception ($p<.01$). Main effects were non-significant. Therefore, the null hypothesis was rejected. Post-hoc analysis yielded significant t-values in favor of "matched" (direct-low and indirect-high) groups.

It was concluded that students demonstrated greater cognitive and affective gains when instructed by teachers whose styles were consistent with the students' level of development. Recommendations for education and research were derived.

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Chapter I

INTRODUCTION

Purpose

Research and literature in the field of education has not produced consistent procedures for organizing instructional groups. The increased emphasis on human resources and educational accountability mandates the development of grouping criteria within school systems in order to realize greater human resource potential.

The purpose of this research was to determine the effect of "direct" and "indirect" teacher delivery styles on selected student behaviors. Specifically, it is predicted that intermediate elementary school students, assigned to "high" and "low" social-emotional development groups, instructed by teachers utilizing different styles, will show differential results in achievement, attention to task, and affective perception.

Background

Educational personnel are presently confronted with increased demands to be ". . . responsible for educational outcomes - for what children learn" (Lieberman, 1970, p. 196). A central concern in the controversy surrounding responsibility has been that of teacher competency, or the teacher's ". . . ability to produce agreed upon results" (Biddle and Ellena, 1964, p. 2). Efforts to enumerate teacher competencies have developed around specific teacher behaviors and/or characteristics and their effect on student behavior. However, there has been a reluctance on the part of educators to accept documented competencies in light of the inconsistent information and confusion that has been generated by theorists, researchers, and practitioners (Biddle, 1964; Rosenshine, 1971).

The fact remains " . . . that the teacher more than anyone else has it within her power to establish the . . . tone of the classroom" (Cantor, 1953, p. 79). This "power" dimension has been demonstrated to vacillate over a rather long continuum, with the degree of power being ascribed as a function of the research and the defined variables under consideration. Ryans (1964), for example, states that ". . . pupil behavior appears to be rather closely related to teacher behavior in the elementary school . . ." (p. 91), but that there is little relationship on the secondary level. In an earlier study, Anderson (1945) stated that he was not able ". . . to demonstrate that the behavior of the teacher is related to the behavior of the child" (p. 153). Similarly, Hamachek (1969), in a review of research, maintains that there are specific characteristics for "good" and "bad" teachers, but that there is ". . . no one best kind of teaching because there is no one kind of student" (p. 344).

In sum, the teacher must be said to have significant influence within the classroom -even if such influence is based solely upon the ascribed role of teacher (Trow, 1960 and Geer, 1968). Since the teacher role function is reported to have significant impact on classroom behaviors, a more specific dimension of teacher influence is warranted.

The characteristic manner in which teachers interact in order to fulfill their role in the classroom is called a teaching style. The most consistent efforts to operationalize teaching styles have been imposed over a concrete-abstract continuum. In conceptual terms, 'direct, dominant, authoritarian,' and structured' styles have been characteristic labels for the more concrete environments in which the classroom interaction is more inclusively controlled by the teacher. On the opposite end, indirect,' 'democratic,' 'integrative," and 'reflective styles have been associated with more abstract educational environments, characterized by more open and less restrictive channels of communication.

Teaching styles and student behaviors have been the subject of numerous theoretical statements and research efforts. The only consistent conclusion has been that " . . . children obviously differ in their skills they bring to the learning situation, (thus) the most effective learning will take place when the material to be learned is most appropriate to whatever the skills the child is able to muster" (Withal and Lewis, 1963, p. 685).

In an effort to empirically differentiate the effects of various styles, many behavioral scientists have attempted to deal with global, singularly-labeled environments. Indicative of this type research was the study by Lewin, Lippitt, and White (1939) dealing with three distinctively defined environments 'authoritarian,' 'laissez-faire,' and 'democratic.' The implications and conclusions of this study pointed to the fact that each leadership style was found to have distinctively different social interaction patterns and completion of task goals.

Carl Rogers (1951) later introduced his notion of client-centered therapy, which was translated into a student-centered method of teaching. Since educators were justifiably concerned over the acquisition of specific knowledge on the part of students, the translation of Roger's model into the field of education was viewed with reluctance. Bills (1956) felt that the idea of "self-discovered, self-appropriated learning" for the 'learning of course content . . . is at least as effective as under more traditional procedures, and that students probably gain in personal adjustment as a result of this method of teaching" (p. 121).

The conclusions reached by Bills, however, are not entirely supported. Other conclusions regarding the efficacy of a student-centered method of teaching are inconsistent. Stern (1962), for example, in a review of studies dealing with learning environments, found that there was only one

research report (Fay, 1949) that actually demonstrated that the student-centered method resulted in ". . . greater mastery of subject matter" (p. 691).

McKeachie (1962) is in basic agreement with Stern. He concluded that students achieved lower scores on final examinations with student-centered methods, which indicated a ". . . weakness, at least in achieving lower-level cognitive goals" (p. 328). Both Stern and McKeachie, however, reaffirm the findings regarding positive changes in student attitude and adjustment.

From these conclusions, at least one important indicator has emerged. The research by Flanders (1965), Piaget (1928), and Hunt (1966) indicates an age-graded, or developmental pattern, in goal attainment. In short, the younger, or less developed children, tend to profit from directed learning experiences, while older, more developed children tend to acquire more within indirect environments. Ryans' (1964) findings about differential effects on elementary versus secondary students are consistent with this developmental pattern.

Stern's (1962) objection to a singular teaching style approach, i.e., student-centered, suggests there is a need for teacher style appropriateness. For Stern, "the same educational objectives may apparently thus be achieved by very different types of students if the environment is appropriately modified for each of them" (p. 702). From a developmental basis, this position appears appropriate. McKeachie's (1962) notion of acquiring "lower-level cognitive goals," Piaget's (1928) stage development of judgment and reasoning, and Hunt's (1966) position involving the radiation of different learning environments to "match" the developmental stage of the child support this position.

The "taxonomies" of educational objectives (Bloom, et al, 1956, and Krathwohl, et al, 1964) reflect a similar developmental sequence; i.e., from specific knowledge to evaluative judgments (cognitively) and from receiving or attending to a value complex (affectively). Recent research efforts have been directed toward a "match" between teaching and learning styles (R & D News, 1970). Using "taxonomy" based instruction, effort has been oriented toward adjusting the teacher's instructional style to be consistent with pupil capabilities.

Each of the reviews and research results discussed indicates a degree of futility in prescribing a standard teaching style or set of teacher competencies. Efforts to alter teaching personality and/or delivery styles have been equally futile. Instead, there is a strong indication that a reciprocal relationship between the child and his learning environment, including the teacher, must develop at a commensurate rate for maximal results. This suggests that classroom assignments for both students and teachers be made on the basis of compatibility between teacher behavior and student development.

Hypothesis

The basic objective of this research was to determine the effect of teacher delivery styles on selected student behaviors, specifically, student achievement, time at attention to task, and affective perception, in light of differential social-emotional development.

The assignment of teachers utilizing direct and indirect styles to instruct students assigned to "high" and "low" social-emotional developmental levels was expected to produce differential results. "Matched" teacher styles and levels of ranked student development (direct-low and indirect-high) were expected to produce significantly (.05 level) greater results than "mismatched" groups (direct-high and indirect-low).

The following hypothesis was tested.

Null H: There is no significant interaction effect between teacher style and student social-emotional development.

The hypothesis was tested for each of the three dependent variables: (1) student achievement (2) student time at attention to task; and (3) student affective perception.

Definition of Terms

Teaching Style. The characteristic manner in which teachers verbally interact within the classroom.

Indirect. Teacher behavior that increases student freedom by reducing the limits or encouraging participation (Flanders, 1965).

Direct. Teacher behavior that restricts student freedom and sets limits or focuses attention (Flanders, 1965).

Social-Emotional Development. Quantitive ranking derived from teacher ranking, peer sociometric choices, classroom seating responses, Behavior Problem Checklist, and incomplete sentences.

Achievement. Quantitatively correct student responses to written and oral questions and directions.

Affective Perception. Student behaviors that demonstrate a feeling tone.

Limitations

The 20 teachers involved in the research were certificated teachers within the Memphis City Schools and the Shelby County Schools, Tennessee.

Assignment into "direct" and "indirect" categories provided an operational distinction between teachers, but not all behaviors were mutually exclusive nor did the teachers demonstrate behaviors representative of all possible behaviors as defined by the interaction analysis system. Furthermore, only teachers who voluntarily consented participated.

The 94 students involved in the research were fourth, fifth, and sixth grade children enrolled in the Memphis City Schools and Shelby County Schools, Tennessee. Assignment into "high" and "low" social-emotional development groups provided a criterion distinction between groups, but not all possible developmental constructs or levels were considered.

Additional factors that warrant caution in the interpretation of results include the sample size, the use of non-standardized instruments, small group instruction, and the lack of control over a number of school and/or classroom variables.

This research was not concerned with variables existing or exerting influence on teachers or students outside of the immediate instructional situation. Such constructs as "background," "personality," "motivation," or any other factor outside the domain of the defined teacher style and social-emotional development were beyond the scope of this research.

There is no intent to generalize the findings beyond the limitations of the research design. The potential effect of the results should be considered in light of the procedure, methodology, and results reported.

Chapter II

METHODS AND PROCEDURES

The methods and procedures planned for this research were designed and executed in order to answer specific questions regarding the effect of teacher style on student achievement, attention to task, and affective perception as related to social-emotional development. The overall strategy was to introduce small group reading instruction by direct and indirect teachers to students functioning on different social-emotional levels.

The research was planned and implemented in three stages: (1) the identification of the sample and assignment into treatment groups; (2) the administration of treatments and the collection of data; and (3) the analysis of data and the reporting of findings.

Sample

Teachers. The teacher sample in this research consisted of twenty certificated teachers employed in intermediate elementary schools in the Memphis City Schools or Shelby County Schools, Tennessee. The sample represented 7 elementary schools located in suburban and rural areas.

During the month of October, 1972, 54 teachers were observed in two instructional settings using the Interaction Analysis procedure. Of the 54 teachers, the 10 most direct and the 10 most indirect were selected to participate in the research. Table 1 reflects the indirect-direct ratio scores of the selected teachers.

Utilization of the 10 teachers at each extreme of the continuum permitted the elimination of teachers with I/D scores between .40 and .60. This procedure served two basic purposes: (1) it provided a clearer distinction between the teacher variable styles, and (2) it decreased the possibility of teachers shifting to the alternate style during the data collection. Audio recordings taped during the data collection indicated that all teachers functioned within their assigned style; however, there was some regression, particularly on the part of extremely indirect teachers.

Within the teacher sample, there was no effort to control for age, sex, race, years of experience, or subject competence. However, for the purpose of general information, all teachers were female, except one; black and white teachers were equally represented in direct and indirect groups, with a 3-7 race ratio, respectively; age ranged from 22 to 60, and there was a modal age of approximately 30 to 40 years. Subject competence and years of experience are not known.

TABLE 1

Indirect-Direct (I/D) Scores of Research Participant Teachers

Indirect Teacher Scores (I/D)			Direct Teacher Scores (I/D)		
First Observation	Second Observation	Combined	First Observation	Second Observation	Combined
.75	.74	.75	.09	--	.09
.87	.64	.74	.22	.20	.21
.80	.69	.73	.18	.26	.23
.69	--	.69	.37	.18	.27
.74	.62	.68	.14	.35	.29
.70	.67	.67	.31	.32	.31
.60	.68	.64	.32	--	.32
.66	.54	.63	.39	.36	.37
.68	.55	.62	.39	.37	.38
.65	.56	.60	.42	.32	.39

Students. The student sample pool consisted of the 524 students regularly assigned to the identified teachers. Each of the students completed the following instruments.

(1) "Who Would You Pick?" (sociometric-peer nominations)
(2) "Because" (incomplete sentences)
(3) "Classroom Seating" (teacher-student distance)

Teachers completed the following instruments regarding their classroom group and the individual members:

(1) Class Ranking (teacher nominations)
(2) Behavior Problem Checklist

The data were compiled for individuals by classroom group. Means were established for each instrument, and composite scores were recorded. Based upon their scores, four to six students were selected from each classroom group by the principal investigator. Each small group was represented by students functioning either 'high' or 'low' as reflected by the instrument responses. Decisions regarding selection were based upon three primary factors (1) extreme scores, i.e., high and low, (2) consistency of scores across all five instrument responses, and (3) necessity for selection of ten small groups for each level and across teacher styles. Ninety-four students were identified to participate

Table 2 reflects the instrumentation data for each of the small groups. For each of the instrument scores, larger numbers indicate a higher level of social-emotional development except for the Behavior Problem Checklist. Visual inspection of the table indicates a high degree of differentiation the only potential exception is in the Incomplete Sentence responses of students with direct teachers.

Each of the cells (5 groups each) were balanced by grade and number of students per group. Reading achievement and intelligence are factors relevant in the report of this research. Reading achievement was not controlled in the design however, post-assignment analysis (independent t-test) revealed that the groups were not significantly different. Further, the reading materials to be used by the small groups were assigned at reading level, thus compensating for potential reading achievement differential.

Intelligence, on the other hand, was considered to be a possible contaminating factor. Therefore, intelligence test scores were obtained for the 94 students from the school systems involved. All scores were derived from a group intelligence test, primarily the Lorge-Thorndike and Otis-Lennon, except for three students who had not been tested and were prorated by the research investigator. Table 3 reflects the intelligence test scores by group means.

Visual inspection of the table indicates a difference between the Indirect-High group and the Direct-Low group. Application of an independent t-test to the means supported the difference by the obtained t-ratio: $p<.10$. However, inasmuch as interaction effects were predicted, the more justifiable comparison was between the combined interaction cells: Indirect-High—Direct-Low and Direct-High--Indirect Low. The means of the means for the first two cells is 100.9, for the latter cells--101.0. Statistically, $t = .022$, which is not significant. Therefore, in light of the hypothesis, comparative intelligence scores are not considered to be related to the dependent variables.

TABLE 2

Small Group Means on Instrument Selection Criteria. Teacher Ranking, Peer Sociogram, 'Classroom Seating', 'Because'-Incomplete Sentences, Total,* and Behavior Problem Checklist

Direct Teaching Style						Indirect Teaching Style					
Teacher Ranking	Peer Sociogram	Classroom Seating	Because-Incomplete Sentence	Total	Behavior Problem Checklist	Teacher Ranking	Peer Sociogram	Classroom Seating	Because-Incomplete Sentence	Total	Behavior Problem Checklist
7.4	15.6	3.6	5.8	26.4	.09	8.0	15.8	8.0	7.0	38.8	.11
9.0	13.5	5.3	9.5	37.3	.09	9.0	15.3	8.0	8.3	40.6	.05
9.0	10.8	7.5	7.0	34.3	.06	7.4	8.2	3.0	4.0	22.6	.16
9.0	14.0	4.8	3.3	31.1	.10	9.0	18.0	5.2	6.3	38.5	.06
9.0	11.0	3.6	7.2	30.8	.19	9.0	10.8	3.2	6.5	29.5	.03
1.0	2.3	1.0	2.1	6.4	.29	1.0	7.0	1.5	4.0	13.5	.29
1.8	6.4	1.6	3.4	13.2	.33	1.0	1.8	2.6	2.0	7.4	.15
1.8	2.8	2.4	1.2	8.2	.29	1.8	5.2	2.2	2.6	11.8	.23
1.0	4.5	1.8	5.0	7.4	.16	1.0	7.2	5.6	3.8	17.6	.56
2.0	3.3	2.3	3.0	10.6	.06	1.0	1.4	1.0	3.2	6.6	.26

*Total equals Teacher Ranking, Peer Sociogram, 'Classroom Seating', and 'Because'- Incomplete Sentences.

TABLE 3

Group Means for Intelligence Test Scores (IQ) by Level of Social-Emotional Development and Across Teaching Styles

Direct Groups	Indirect Groups
Direct-High Groups (N=5)	Indirect-High Groups (N=5)
105	112
107	112
111	95
98	114
96	95
103.4*	105.6*
Direct-Low Groups (N=5)	Indirect-Low Groups (N=5)
92	113
85	102
92	99
108	88
104	91
96.2*	98.6*

*Mean of the means

Pilot Study

A primary problem in the area of instrumentation was the selection of assessment techniques that would measure social-emotional development. During the summer of 1972, two elementary classroom groups located in a non-public school were used to test standardized instruments, checklist type instruments, and techniques developed by the principal investigator.

Several instruments were reviewed and rejected on *prima facie* evidence; i.e., administration time requirement, inappropriate age level, individual administration, and/or extraordinarily complicated completion procedures. The pilot study also revealed inconsistent results between standardized instrument responses and other assessment techniques.

The Interaction Analysis, Behavior Problem Checklist, teacher nominations (Class Ranking), and peer-nomination ("Who Would You Pick?") were

retained in the research design as originally stipulated. Two instruments were developed by the principal investigator: an incomplete sentence format entitled "Because" and a circular symbols chart labeled "Classroom Seating."

The first instrument, entitled "Because," provides 6 items dealing with authority in the form of rules, parents, and/or teachers. The responses were designed to solicit the students' locus of control--external (low social-emotional development) vs. internal (high development). The concept and rationale is based upon Jean Piaget's (1928) hypotheses regarding judgment and reasoning (moral development) and David Hunt's (1966) levels of conceptual development.

A second instrument, entitled "Classroom Seating," was concurrently developed. This instrument is a self-report technique that follows the Robert Zillier (1966) Self-Social Symbols format. The data yield indicates the extent of teacher-student distance (dependence). Each symbol is weighted in accordance with the distance and number of barriers between the teacher and the seating preference marked. A score of 1 is interpreted to indicate dependency, and a score of 10 to signify teacher independence or high social-emotional development.

Table 4 contains a correlation matrix indicating the degree of interrelationship among responses on the instruments.

TABLE 4

Correlations Between Instrument Responses: Teacher Nominations; Peer Nominations; "Classroom Seating", and "Because" (N=26)

	"Who Would You Pick?"	"Classroom Seating"	"Because"
Teacher Nominations ("Class Ranking")	.53*	.48**	.54*
Peer Nominations ("Who Would You Pick?")		.16***	.56*
"Classroom Seating"			.53*

df = 25; *p <01; **p< .02; ***Non-significant

The correlations obtained indicate the existence of relatively distinct characteristics as well as sufficient overlap for the inclusion of a total score. Due to more efficient administration procedures and the levels of significance obtained, the decision not to utilize standardized instruments was made by the investigator.

Instruments

Documented Instruments. The four additional procedures employed for the selection and assignment of teachers and students have been documented and are included in the appendix; therefore, they will not be discussed in the context of this research. These include Interaction Analysis (Flanders 1965; and Amidon and Hunter, 1966), teacher and peer nominations (Gordon, 1966, and Fox, Luszki, and Schmuck, 1966), and the Behavior Problem Checklist (Quay and Peterson, 1967).

Measurement Instruments and Techniques. Procedures for measuring the dependent variables (student achievement, attention to task, and affective perception) consisted of observational and paper-and-pencil techniques. The anticipated range of possible responses precluded narrow restrictions upon the data collection format. Therefore, the combination of procedures was deemed appropriate (Rich, 1969).

The measurement of achievement or correct responses within a defined educational environment was considered appropriate for this investigation. Pre-investigation considerations called for indications of achievement measured by standardized achievement tests and specifically designed classroom constructed achievement tests in order to empirically measure changes and performance in achievement. However, the notion of standardized instruments was discarded in favor of classroom relevant achievement as measured by teacher prepared worksheets and unobtrusive observation (Webb, et al., 1966).

The decision to use observational techniques as the primary data collection method was based upon the belief that direct observation would yield data that most accurately reflected the behaviors in the classroom situation. Numerous research studies have used observational methods as the primary, if not the exclusive, technique for acquiring data (Anderson, 1946; Flanders, 1965; Ryans, 1960; Medley and Mitzel, 1963; Hughes, 1962; Barker and Wright, 1955; and Gump, Schoggen, and Redl, 1963). In the main, these authors contend that behaviors are characterized by a limited number of responses (with independent qualities), and are distinguishable and classifiable, and that overt responses are both omnipresent and are sufficient to make generalizations. Moos (1968), Bales (1950), and McCandless (1967) additionally maintain that observer effects

upon subjects are small and, in most cases, non-significant. In fact, observational procedures are considered to have less influence upon the outcome than many grouping designs or standardized test procedures.

Aside from the Interaction Analysis used for teacher assignment, a trait rating observation format was developed (Wright, 1960) to record correct and incorrect responses to teacher questions, and the frequency of attending behaviors and positive and negative responses during the small group sessions. (Instructions on the use of the recording format are contained in the appendix).

Paper-and-pencil techniques were additional methods used to collect achievement and affective perception data. Immediately following the small group sessions, a series of written questions, each requiring a written response, was completed by each student. All responses were scored with the percentage correct; daily group means were recorded.

A graphic, self-report instrument entitled "Faces" was completed by each student twice weekly. The instrument was designed to tap the students' feelings regarding six phases of the lesson by marking one of four faces with gradient expressions (see Appendix C, page 49).

Instructional Group Objective

To ensure equity of experience across groups, a singular stimulus and task were designed. It was planned for each of the 20 small groups to meet daily for 30 school days with a specific lesson involving reading.* After consultation with selected teachers and reading specialists, the investigator selected a reading series entitled Reading for Concepts, by William Liddle (Webster Division of McGraw-Hill). The selection was based on several factors: (1) the brevity of the individual stories, which made possible covering the daily material in less than thirty (30) minutes; (2) the differential grade level availability (1.6 to 6.7 reading level); (3) the series of taxonomy-oriented questions following each story; (4) story content variability; and (5) attractiveness and seductivity of the format and illustrations.

Schedule

The schedule was as follows:

September 25-October 13, 1972:

Obtained and trained observers.

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*The 30 day limitation was reduced to a minimum of 20 school days.

October 9-12, 1972:

Selected 20 teachers from a pool of 54 teachers.

October 16-27, 1972:

Pupils and teachers completed assessment forms;
Selected 4-6 pupils for each reading group.

November 3-December 6, 1972:

Reading groups began operation.
Collected pupil data via observation, perception forms, and the question-answer exercise concluding each Reading for Concepts story.
Collected data daily for the duration of research.

December, 1972:

Analyzed research data.

January, 1973:

Drafted research report.

Observer Selection and Training

Seven graduate students were trained to use the Interaction Analysis scoring procedure by the principal investigator. The training was terminated when all observers had established a minimum inter-observer agreement percentage of .72. The range among the seven observers was .72 to .92; there was a median agreement of .81. The correlation was derived by agreement-disagreement on the individual teacher and student behaviors coded on the system. Agreement on the gross categories of direct and indirect teacher behavior were all in excess of .85.

The services of university upper-classmen were solicited to observe the small reading group activities. Ten students were selected, and each completed three training sessions: two in-class sessions and one "live" session in the university demonstration school. The specific task of these observers was to observe the small group exercises and record verbal questions and responses, attention to task, and affective perception. Inter-observer agreement of the first two dimensions exceeded the .72 level; agreement on the affective perception, however, did not achieve the minimal level. Although the mean agreement was beyond the level for the group of ten (10) observers (.78), one observer had an agreement score of .62.

Observer assignments were dependent on the available time and the time the research teachers scheduled the small group activity. Effort was made to assign each observer two groups, each of which was contained within different cells of the research design. This balancing procedure was employed so that observer bias would be spread across cells rather than be contained within a single cell. This procedure was accomplished for 8 of the 10 observers; for the remaining two observers an alternate observer was used twice weekly. Observers coded behaviors only; none was aware of the hypothesis, teacher-student assignment procedures, or expected results.

Teachers Instructions

The 20 teachers involved were not required to teach in any specific way. Since the direct and indirect teacher style variable was the treatment concept on which teachers were assigned based upon actual behaviors, the freedom to exercise their "natural" style was imperative.

The following information was disseminated to teachers prior to the collection of data:

Basically, (the investigator) needs teachers who will work with four to six of their regular students in a reading group. The reading groups will be in operation for a maximum of 30 school days with each daily session lasting 15 to 30 minutes. It is planned for all groups to use a similar reading stimuli at the appropriate age level, William Liddle's Reading for Concepts. Teachers will not be asked to teach in any special way; instead, teachers are encouraged to use their regular methods of instruction. During many of the sessions, an observer will be in the classroom to collect specific pupil behavior data.

The teachers had no knowledge of the hypothesis of the research. All personnel were aware of the behaviors to be measured among the elementary students, but they did not know of the direct-indirect classification and expected results.

Analysis of Data

The basic research design is an adaptation of the "Equivalent Time Samples Design" discussed by Campbell and Stanley (1963). This design controls major sources of internal invalidity; controls of sources of external invalidity are questionable.

Consistent with the hypothesis, a 2 x 2, Fixed-Effects Model, Analysis of Variance (ANOVA) was utilized. ANOVA cell assignment of small groups was determined by the treatments (teaching style) and the stratified sample of students (social-emotional development).

		Teaching Styles: Direct (N=10)	Teaching Styles: Indirect (N=10)
Student Social-Emotional Development	High (n=46)	N=5 n=23	N=5 n=23
	Low (n=48)	N=5 n=25	N=5 n=23

The hypothesis which stated that there was no interaction effect was tested via ANOVA for the three dependent variables. (1) student achievement; (2) student attention to task; and (3) student affective perception. Repeated measures of the three student dependent variables were collected throughout the experiment.* All student experimental behaviors were quantitatively recorded; i.e., correct and incorrect achievement responses, both verbal and written; frequency of attending and avoiding behavior; and the frequency of behavioral indices and differential score for affective perception. Because of the variability of opportunity among groups, all scores were converted to percentage scores.

For each of the 20 small groups, group mean scores (N=5) were used in a factorial group-within-treatments design. Post-hoc analysis was used to determine if what was true for the pooled groups was also true for the groups independently when the null hypothesis was rejected.

Summary of Methods and Procedures

The review of literature indicated that students would demonstrate greater cognitive and affective gains if the radiated educational environment, particularly teacher style, was consistent with the students' level of social-emotional development. This research was designed to investigate specifically defined elements within that theoretical construct.

Twenty teachers who demonstrated direct (N=10) and indirect (N=10) teaching styles were identified. Ninety-four intermediate elementary students who scored high (n=46) or low (n=48) on five combined measures of social-emotional development were identified. Students were assigned to "high" and "low" groups and instructed in a reading program. A 2 x 2 design was planned with the following cell compositions (five groups per cell): direct teachers - high developmental students (mismatched); indirect teachers-high developmental students (matched); direct teachers-

*The original research design required 30 small group sessions on different school days; however, conflicts in the classroom, public school, and observer schedules caused the number of sessions to be reduced to a minimum of 20 sessions.

low developmental students (matched); and indirect teachers-low developmental students (mismatched). Each group was instructed daily (15-30 minutes) for a minimum of 20 school days.

The null hypothesis stated that there would be no significant interaction differences on three dependent variable measurements. student achievement, student time at attention to task, and student affective perception of the instruction (feeling state). A 2 x 2 ANOVA, Fixed-Effects Model was employed to test the hypothesis. Post-hoc analysis (independent t-test) was planned where significant differences occurred.

Data was obtained during the group instructional periods. Direct observation and paper-and-pencil measures were used as the collection procedures. All frequencies were converted into percentage scores.

Chapter III

RESULTS

This research was designed to determine whether direct and indirect teaching styles had differential effect upon intermediate elementary students functioning on dichotomized levels of social-emotional development. Interaction effects were predicted for student achievement, student attention to task, and student affective perception. In accordance with the defined variables, twenty small reading instructional groups were organized, each complying with the assignment criteria of one of four ANOVA cells:

A_1B_1 Direct Teachers - Students High Social-Emotional Development

A_2B_1 Indirect Teachers - Students High in Social-Emotional Development

A_1B_2 Direct Teachers - Students Low in Social-Emotional Development

A_2B_1 Indirect Teachers - Students Low in Social-Emotional Development

Consistent with the review of research presented in Chapter I—Introduction, it was hypothesized that the students in cells A_2B_1 and A_1B_2 would score significantly higher as the educational environment radiated by the teacher was more consistent (matched) with their cognitive and affective needs. The two remaining cells, on the other hand, represented an incongruent (mismatched) teacher-learning environment.

In this chapter, the data collected and analyzed by the methods and procedures described in Chapter II are presented.

Student Achievement

Student achievement is represented by the percentage of correct responses on the written questions in the reading text and correct verbal responses to teacher questions that occurred during the small group lessons. The percentage of correct responses, using small group means, is presented in Table 5.

A 2 x 2 ANOVA, Fixed-Effects Model was applied to the data for the purpose of determining the credibility of the hypothesis. Table 6 reflects the results of that statistical procedure.

In light of the significant F scores for interaction effects, the null hypothesis for student achievement is rejected.

TABLE 5

Student Achievement: Group Mean Percentages for Correct Responses (N=20)

	Direct-High A_1 B_1	Indirect-High A_2 B_1	Direct-Low A_1 B_2	Indirect-Low A_2 B_2
	60.86	75.72	79.27	82.53
	72.72	89.14	82.01	76.48
	83.29	86.74	88.15	75.16
	72.70	87.56	82.66	77.97
	80.84	88.92	74.78	73.67
Mean	74.82	85.62	81.37	77.16
Variance	61.81	25.26	19.18	9.23
SD	7.86	5.03	4.38	3.08

TABLE 6

ANOVA of Student Achievement

Source	SS	df	MS	F	p
Teacher Style - A	67.01	1	67.01	1.86	NS
Student Development - B	1.69	1	1.69	.05	NS
Interaction - A x B	309.92	1	309.92	8.59	< .01
Error	577.37	16	36.09		
Total	955.99	19			

Raw data and ANOVA for the written and verbal responses are presented separately in the appendix. Interaction effects for both were significant, $p < .025$ and $p < .05$, respectively; main effects were non-significant.

Post-hoc analysis of the interactive groups, utilizing the independent t-test, indicates that students in the Indirect-High and the Direct-Low groups obtained significantly greater achievement scores.

TABLE 7

Independent t-Test: Group Interaction Effects for Student Achievement

Indirect-High/Direct Low (N=10)		Direct-High/Indirect-Low (N=10)			
A_2 B_1	A_1 B_2	A_1 B_1	A_2 B_2		
Mean Percent	SD	Mean Percent	SD	t	p
83.50	5.17	75.62	6.16	2.94	< .01

Independent t-tests between individual interaction cells failed to yield significant differences.

The data analysis regarding student achievement supports the position that differential learning environments designed to be consistent with the students' developmental level of functioning are tenable. More specific to this research, evidence indicates that students functioning on a high level of social-emotional development instructed by indirect teachers and students functioning on a low level of social-emotional development instructed by direct teachers demonstrate greater achievement scores than the two alternate groups. However, there was no evidence to indicate that students within either of the interaction groups performed with significantly greater scores.

Student Time at Attention to Task

Student time at attention to task is reported in percentage scores. As a group mean reference, each percentage point represents a minimum of 1 minute, 20 seconds of time. Percentage of time at attention to task is presented in Table 8.

The descriptive data indicates scores that are consistent with expected results. Variance, on the other hand, in constricted in favor of indirect teachers across both stratified student groups.

TABLE 8

Student Time at Attention to Task
Group Mean Percentage (N=20)

	Direct-High A_1 B_1	Indirect-High A_2 B_1	Direct-Low A_1 B_2	Indirect Low A_2 B_2
	84.51	97.33	87.10	88.41
	84.37	98.20	97.33	93.26
	95.48	93.63	98.56	86.92
	86.25	91.55	97.46	94.80
	89.50	93.97	85.30	88.10
Mean	88.02	94.94	93.15	90.30
Variance	17.32	6.10	32.71	9.77
SD	4.16	2.47	5.72	3.13

Consistent with the research design, the ANOVA was used to test the hypothesis. The results of the analysis are presented in Table 9.

TABLE 9

ANOVA of Student Time at Attention to Task

Source	SS	df	MS	F	p
Teacher Style - A	20.62	1	20.62	1.00	NS
Student Development - B	.30	1	.30	.01	NS
Interaction - A x B	119.22	1	119.22	5.79	< .05
Error	329.50	16	20.59		
Total	469.64	19			

The significant (.05) F score supports the prediction that interaction effects exist; therefore, the null hypothesis is rejected. It should be noted, however, that the level of significance is substantially lower than that of student achievement. The possibility exists that there is a positive relationship between achievement and attention to task.

A post hoc analysis procedure was initiated with reference to student time at attention to task. The independent t-test was employed in an effort to identify the cell or cells creating the significant interaction effect.

TABLE 10

Independent t-Test: Group Interaction Effects
For Student Time at Attention to Task

Indirect-High/Direct-Low (N=10)		Direct-High/Indirect-Low (N=10)		
A_2 B_1	A_1 B_2	A_1 B_1	A_2 B_2	
Mean Percent	SD	Mean Percent	SD	t
94.04	4.49	89.16	3.85	2.47 <.025

Independent t-tests comparing individual interaction cells failed to produce significant results.

The statistical evidence presented for student time at attention to task supports the research prediction. Specifically, students ranked high and taught by indirect teachers and students ranked low and taught by direct teachers had greater time at attention to task than did high ranked students with direct teachers or low ranked students with indirect teachers. The prediction that "matched" groups would perform significantly better was again supported.

Student Affective Perception

The raw data for student affective perception was derived from two sources: observed behavioral expressions of positive and negative feeling

states and a differential student self-report instrument. The combined percentages were used in the analysis of data descriptive and inferential data for the individual sources are contained in the appendix.

TABLE 11

Student Affective Perception:
Group Mean Percentages (N=20)

	Direct-High A_1 B_1	Indirect-High A_2 B_2	Direct-Low A_1 B_1	Indirect-Low A_2 B_2
	86.41	85.64	91.44	72.33
	80.80	95.67	87.39	79.10
	75.15	87.84	92.46	67.41
	83.37	94.21	89.53	85.17
	90.14	84.83	98.76	87.14
Mean	83.17	89.64	90.12	78.23
Variance	25.81	19.92	3.03	56.04
SD	5.08	4.46	1.74	7.49

The descriptive data alludes to the possibility of interaction effects. This tentative conclusion is drawn on the basis of greater mean scores and the smaller variance for cells A_2 B_1 and A_1 B_2.

Based upon the ANOVA data in Table 12, the null hypothesis is rejected. However, a note of caution is warranted. Since a singular measurement, namely, observed student expression, was primarily responsible for the significant F score, the rejection is less tenable. This decision is compounded by the fact than inter-observer reliability for this dimension was less than for other observer categories and was below the minimal level designed for this research.

Significant interaction effects for student affective perception were created by the cells containing indirect teachers - high students and direct teachers - low students as indicated by post-hoc analysis.

TABLE 12

ANOVA of Student Affective Perception

Source	SS	df	MS	F	p
Teacher Style - A	36.75	1	36.75	1.12	NS
Student Development - B	24.93	1	24.93	.76	NS
Interaction - A x B	420.90	1	420.90	12.85	<.01
Error	524.02	16	32.75		
Total	1006.60	19			

With reference to the two separate measures of affective perception, ANOVA for the student self-report differential yielded no significant F scores, observed expressions yielded significant scores for teacher style - A ($p < .05$) and interaction - A x B ($p < .01$).

TABLE 13

Independent t-Test: Group Interaction Effects for Student Affective Perception

Indirect High/Direct Low (N=10)		Direct-High/Indirect Low (N=10)			
A_2 B_1	A_1 B_2	A_1 B_1	A_2 B_2		
Mean Percent	SD	Mean Percent	SD	t	p
89.88	3.40	80.70	6.86	3.60	< .005

Individual interaction cell comparisons were not significant.

The levels of significance obtained through the statistical procedures signify that teacher styles effect student affective perception when styles and levels of development are matched. The predicted outcome was supported that students functioning on high and low levels of social-emotional development would have a more positive affective perception with indirect and direct teachers, respectively. The converse groups i.e., direct teachers-high students and indirect teachers-low students, quantitatively demonstrated lower affective perception scores.

Summary of Results

This research was designed to determine the effect of two teaching styles on students functioning on different social-emotional developmental levels. Reading instruction groups (20) were identified by high and low student scores. Direct and indirect teaching styles and high and low ranked students were stratified within a 2 x 2 paradigm.

The null hypothesis stated there would be no interaction effects with reference to three dependent variables: student achievement, student attention to task, and student affective perception. A 2 x 2, Fixed-Effects Model, ANOVA, was planned to test the hypothesis. Post-hoc procedures were planned where ANOVA analysis yielded significant (.05) differences.

Frequency data on the dependent variables were collected, translated into percentage scores, and recorded by groups. The raw data were analyzed via ANOVA. The results revealed that all interaction effects were significant: student achievement ($F_{1,16}=8.59$; $p< .01$), student attention to task ($F_{1,16}=5.79$; $p<.05$), and student affective perception ($F_{1,16}=12.85$; $p<.01$). Main effects all yielded non-significant results.

The hypothesis for each dependent variable was rejected. Statistically, there was sufficient evidence to warrant the conclusion that interaction effects existed.

A post-hoc analysis utilizing the independent t-test was used to compare the interaction groups. The t-values derived from this procedure further supported the predictions of this research. Specifically, a comparison of cells (Direct-High and Indirect-Low against Direct-Low and Indirect-High) yielded significant t-values in favor of the Direct-Low and Indirect-High cells for each dependent variable: achievement ($p<.01$), attention to task ($p<.005$), and affective perception ($p<.025$).

Chapter IV

CONCLUSIONS

This research was designed to determine whether or not teacher delivery style had an effect on achievement, time at attention to task, and the affective perception of intermediate elementary students ranked on two extreme levels of social-emotional development. A 2 x 2 paradigm was utilized direct and indirect teacher treatments and students ranked high and low in social-emotional development. Twenty small instructional groups were identified and a comprehension reading task, controlled for all groups, was implemented.

The selected literature indicated that educational environments consistent with the students' level of social-emotional development should be radiated. Teacher delivery style was considered the single most influential factor that determined the educational environment.

Based on the literature, teachers and students were "matched" and "mismatched." The "matched" groups (N=10) consisted of direct teachers and students ranked low developmentally and indirect teachers and students ranked high developmentally. The "mismatched" groups (N=10) consisted of direct teachers and students ranked high developmentally, and indirect teacher and students ranked low developmentally.

Observation and paper-and-pencil data were collected and statistically analyzed. Based on the nature and limitations of this research, and the ANOVA and t-values derived, the following conclusions are delineated.

1. Small reading groups instructed by teachers whose style was consistent with the level of student development ("matched") demonstrated a significant effect on students which resulted in: (1) greater achievement scores; (2) greater time at attention to task; and (3) more positive affective perception.

Therefore, the singular most tenable conclusion is that students, in general, perform with greater cognitive efficiency and positive affect when instructed by teachers whose delivery style is consistent with the students' social-emotional development level. More specifically, direct teachers and students ranked low ("matched") and indirect teachers and students ranked high ("matched") provide educational settings that demonstrate greater student achievement, time at attention to task, and affective perception. "Mismatched" groups i.e., direct teachers-high students and indirect teachers-low students, are less effective with relation to the dependent variables.

2. Comparisons between "matched" groups and "mismatched" groups further indicated the relevance of teacher style -- student development

consistency. Both direct and indirect teachers, when 'matched' with ranked student development, demonstrated greater student gains. Both teacher styles demonstrated proportionately less student gain when 'mismatched.'

Therefore, it is concluded that neither teacher style, as an isolated concept, is more educationally relevant, but that the student development component is necessary to determine teacher effectiveness. The question of teacher instructional competency is directly related to student assignment based on congruence between teachers and students.

3. A ranked level of student social-emotional development was not an appropriate predictor of educational performance independent of defined educational environment; i.e., teacher style.

In summary, the conclusions stated advocate the need for a more meaningful process by which students may achieve greater cognitive and affective gains within formal, educational structures. Specifically, the conclusions indicate a need to 'match' teacher styles and student development in order to increase student academic achievement and realize greater human potential for both teachers and students.

Chapter V

RECOMMENDATIONS

This research revealed a number of factors that have tentative application for elementary education, educational accountability, teacher training, and future research. These recommendations, however, are presented as relevant within the parameters of this research and are suggested in terms of the results obtained.

Recommendations for Elementary Education. The classroom selection of teacher-student groups has tended to depend upon subjective assignment criteria, including randomization procedures, ability grouping, classroom space available, and so on. These procedures, with the possible exception of ability grouping, have been administrative luxuries that are not educationally defensible. An alternative is suggested by this research: namely, assignments based upon teacher-student compatibility.

In the formation of classroom groups, or the introduction of individual students into established groups, educators should consider social-emotional development as highly relevant to the educational process. Cognitive and affective gains on the part of students who were "matched" with teacher style provides specific evidence of a more empirical approach to teacher-student assignment.

Related literature has repeatedly indicated that many students within the classroom have failed to function on a level commensurate with intellectual ability and past academic performance. One possible explanation for a substantial percentage of these student behaviors is that their developmental level and educational environment are incongruent or "mismatched." Assuring teacher-student compatibility, therefore, may reduce frustration and failure rates for both teachers and students.

Recommendations for Educational Accountability. Since the time is approaching when educators must predetermine the growth effects of instructional effort for individual students, there is a need for more consistent, accurate predictors. Although the extent of gains for students was beyond the scope of this research, it was demonstrated that in-class responses for "matched" groups was superior to "mismatched" group assignments. Therefore, attention to teacher-student assignments based on style and development will increase the probability of growth effects among students.

A second implication for accountability is related to the growth effect criteria. Traditionally, academic gains as measured by standardized tests have been used to report progress, and report cards reflecting in-class behaviors have been used as ongoing records. A dimension not yet fully realized is the affective perception or "feeling state" of the

students. In terms of mental health, affective perception is an equally valuable concept to include in the evaluation of instructional effects.

Recommendations for Teacher Training. There are numerous references to teaching models contained within the professional literature; several components of models are documented in the background literature for this research. In the main, teacher training institutions have been inundated with complete or partial models focusing on one or several 'learning theories,' 'cognitive processes,' 'behavior modification' techniques, 'inductive-deductive approaches' and so on. A specific implication contained within this research is that the characteristic style of teacher candidates should be utilized rather than altered. This research indicates a need for a variety of delivery styles, not a singular or global teacher type.

Implications to be made suggest that teacher candidates should be aware of their characteristic style, particularly with reference to effects upon students, in order to promote the most beneficial learning environment. Systematic feedback, interaction analysis procedures, and student assessment techniques are necessary prerequisites.

Recommendations for Research. A number of research implications were derived from the results, conclusion, and limitations of this research. Within this research design, replication with greater specificity of teacher and student variables is required. Evaluation of potential long term changes among the student dependent variables is considered advisable. In addition, teacher attitudes must be evaluated with reference to instructing 'matched' and 'mismatched' groups.

In light of the conclusions, there is a need to research the variables within this research: less restrictive teacher style behaviors, more inclusive and/or different levels and measures of social-emotional development, effects on individual students and large groups, differences across broader grade and age levels, and achievement for different subject content areas. However, it is suggested that future endeavors utilize product and process techniques for the purpose of specifying the behavioral dimensions and their effects. In addition, descriptions and quantifications of personality and/or behavioral constructs related to teacher style and student social-emotional development are appropriate.

This research has shed light upon the effect of teacher delivery styles as related to the social-emotional development of students. However, the results must be substantiated and enlarged by additional research. The ultimate goal includes the reporting, translation, and application of accumulated knowledge into teacher training programs and public school efforts in order to provide quality education for children.

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APPENDIXES

APPENDIX A

STUDENT ASSESSMENT INSTRUMENTS

'Because'
'Who Would You Pick?'
'Classroom Seating'
'Teacher: Class Ranking'
Behavior Problem Checklist

"BECAUSE"

Name:_____Birthdate: Month_____Year_____

Teacher:_____Grade_____Date_____

Written below are several incomplete sentences. Each sentence is started and you are asked to finish the sentences. What you believe is important; there are no right or wrong endings to the sentences. Thank you.

1. Rules and laws are important because_____

_____

_____

2. Teachers are responsible for the classroom because_____

_____

_____

3. What my parents tell me is right because_____

_____

_____

4. If I disobey, I should be punished because_____

_____

_____

5. I should do my homework because_____

_____

_____

6. When people break the law they should be punished because_____

_____

_____

"Because"

Administration and Scoring

The "Because" instrument was designed as a measure of development and was founded on the concepts advanced by Jean Piaget (1928) and David Hunt (1966).

The instrument is a self-report, student completed measure. There is no time limitation; however, most students complete the instrument in approximately ten (10) minutes. A minimum reading level of 3.5 is required. For students with reading levels below 3.5, oral presentation and individual student consultation is necessary.

The following directions are contained on the instrument:

> "Written below are several incomplete sentences. Each sentence is started and you are asked to finish the sentences. What you believe is important; there are no right or wrong endings to the sentences."

Following the directions there are six (6) sentence stems with space for written responses.

1. Rules and laws are important because...
2. Teachers are responsible for the classroom because...
3. What my parents tell me is right because...
4. If I disobey, I should be punished because...
5. I should do my homework because...
6. When people break the law they should be punished because...

Each sentence completion is scored 1, 2, or 3; the total instrument score ranges from six (6) to eighteen (18). Lower scores indicate low or less developed stages; higher scores indicate a porportionately higher level of development. The mean score for the 6 stems is recorded.

The following scoring rationale was employed:

Score of One (1): When the S repeated the stem; stated or alluded to unchangeable authority; or when the response was simply connected to the stem without some causal rationale.

Score of Three (3): Wnen the S indicated a justification for the stem; provided an non-authortarian, but tenable relationship; or utilized an internal mediating process.

Score of Two (2): When the S indicated a combination of the two rationales listed above; responded in terms of a value judgment (e.g., fairness, truthfulness, etc.); or used a rationale which was illogical or inappropriate.

WHO WOULD YOU PICK?

Name:_____Birthdate: Month_____Year____

Teacher:_____Grade_____Date_____

Three members of the class you would like to work or study with --

1._____

2._____

3._____

Three members of this class you would like to go on a picnic or camping with --

1._____

2._____

3._____

Three members of this class you would like to have for class officers --

1._____

2._____

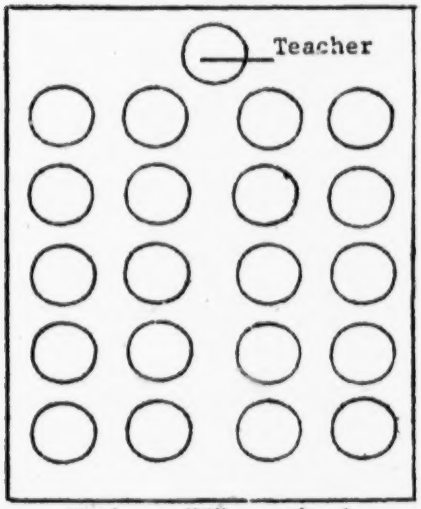
3._____

Classroom Seating

NAME_____ DATE_____

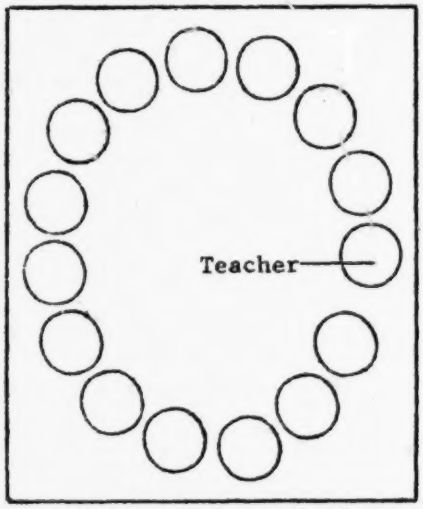
On this page there are some rectangles which represent classrooms. Within the first <u>three</u> "classrooms" there are circles which represent teachers and students sitting in different places. Now, within each classroom, mark the circle with an "X" which shows where <u>you would like to sit</u>. In the last classroom draw the seating that you like best (with teacher and you.)

1.



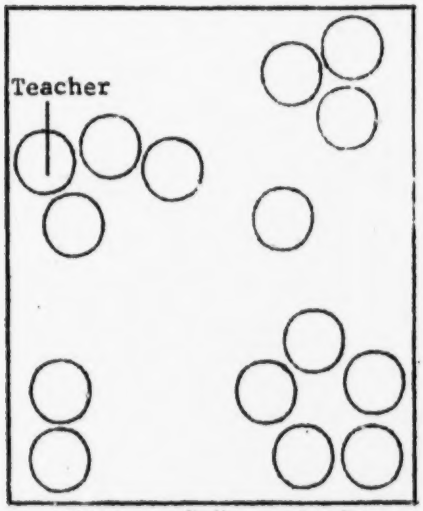
With an "X", mark where you would like to sit.

2.



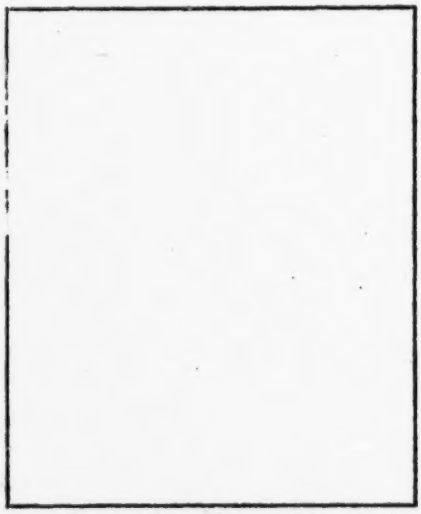
With an "X", mark where you would like to sit.

3.



With an "X", mark where you would like to sit.

4.



Draw the classroom seating that you like best. Mark your teacher & you!

Classroom Seating

Administration and Scoring

The Classroom Seating Instrument was designed as a measure of teacher-student social distance and was equated to be an assessment of relative teacher dependency on the part of students.

The instrument is a self-report, student completed measure. There is no time completion limitation; however, most students complete the instrument in less than five minutes. A minimum reading achievement level of 3.5 is required if instrument directions are not presented orally. Recommended age level is eight (8) years through twelve (12) years.

The following student directions for completion are written on the instrument:

"On this page there are some rectangles which represent classrooms. Within the first three classrooms' there are circles which represent teachers and students sitting in different places. Now, within each classroom, mark the circle with an "X" which shows where you would like to sit. In the last classroom draw the seating that you like best (with teacher and you)".

The student score is derived from the scores assigned each circle on the instrument. The median score for Figures 1, 2, and 3 is used. Figure 4 is used for a validity comparison with the derived score.

Figure 1.

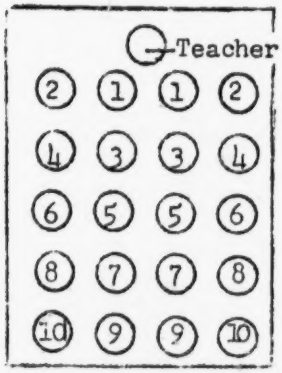


Figure 2.

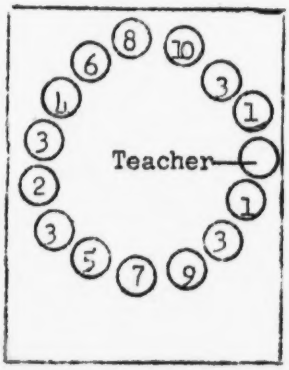
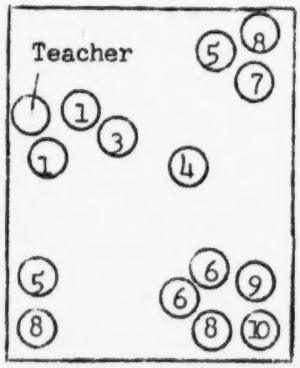


Figure 3.



The median score will be between one (1) and ten (10). A score of one (1) represents a small degree of social distance between the student and teacher or high dependency; a score of ten (10) represents a great degree of social distance or student independence of the teacher. For the 524 Ss in the research pool the median score was 4; mean score 3.65.

TEACHER: CLASS RANKING

TEACHER:_____GRADE:_____DATE:_____

Using first name, last initial only, please list 7 to 10 pupils in your class that you feel tend to be leaders, constructively independent, are imaginative and creative, and/or are positively active.

1. 6.
2. 7.
3. 8.
4. 9.
5. 10.

Please list the 7 to 10 pupils in your class that you feel tend to be followers, perform routinely, depend excessively on teacher or peers, and/or are isolated or withdrawn.

1. 6.
2. 7.
3. 8.
4. 9.
5. 10.

BEHAVIOR PROBLEM CHECKLIST

Child:_____ Date:_____

Rater:_____

Please indicate which of the following constitute problems as far as this child is concerned. If an item does not constitute a problem, encircle the zero; if an item constitutes a mild problem, encircle the one; if an item constitutes a severe problem, encircle the two. Please complete every item.

1.	0	1	2	Oddness, bizarre behavior
2.	0	1	2	Restlessness, inability to sit still
3.	0	1	2	Attention seeking, "show off" behavior
4.	0	1	2	Stays out late at night
5.	0	1	2	Doesn't know how to have fun; behaves like a little adult
6.	0	1	2	Self-consciousness; easily embarrassed
7.	0	1	2	Fixed expression, lack of emotional reactivity
8.	0	1	2	Disruptiveness; tendency to annoy & bother others
9.	0	1	2	Feelings of inferiority
10.	0	1	2	Steals in company with others
11.	0	1	2	Boisterousness, rowdiness
12.	0	1	2	Crying over minor annoyances and hurts
13.	0	1	2	Preoccupation; in a "world of his own"
14.	0	1	2	Shyness, bashfulness
15.	0	1	2	Social withdrawal, preference for solitary activities
16.	0	1	2	Dislike for school
17.	0	1	2	Jealousy over attention paid other children
18.	0	1	2	Belongs to a gang
19.	0	1	2	Repetitive speech
20.	0	1	2	Short attention span
21.	0	1	2	Lack of self-confidence
22.	0	1	2	Inattentiveness to what others say
23.	0	1	2	Easily flustered and confused
24.	0	1	2	Incoherent speech
25.	0	1	2	Fighting
26.	0	1	2	Loyal to delinquent friends
27.	0	1	2	Temper tantrums

28.	0	1	2	Reticence, secretiveness
29.	0	1	2	Truancy from school
30.	0	1	2	Hypersensitivity; feelings easily hurt
31.	0	1	2	Laziness in school and in performance of other tasks
32.	0	1	2	Anxiety, chronic general fearfulness
33.	0	1	2	Irresponsibility, undependability
34.	0	1	2	Excessive daydreaming
35.	0	1	2	Masturbation
36.	0	1	2	Has bad companions
37.	0	1	2	Tension, inability to relax
38.	0	1	2	Disobedience, difficulty in disciplinary control
39.	0	1	2	Depression, chronic sadness
40.	0	1	2	Uncooperativeness in group situations
41.	0	1	2	Aloofness, social reserve
42.	0	1	2	Passivity, suggestibility; easily led by others
43.	0	1	2	Clumsiness, awkwardness, poor muscular coordination
44.	0	1	2	Hyperactivity; "always on the go"
45.	0	1	2	Distractibility
46.	0	1	2	Destructiveness in regard to his own and/or other's property
47.	0	1	2	Negativism, tendency to do the opposite of what is requested
48.	0	1	2	Impertinence, sauciness
49.	0	1	2	Sluggishness, lethargy
50.	0	1	2	Drowsiness
51.	0	1	2	Profane language, swearing, cursing
52.	0	1	2	Nervousness, jitteriness, jumpiness; easily startled
53.	0	1	2	Irritability; hot-tempered, easily aroused to anger
54.	0	1	2	Enuresis, bed-wetting
55.	0	1	2	Often has physical complaints, e.g. headaches, stomach ache

Scoring Key for the Behavior Problem Checklist.

Factor: Conduct Problem
(N=17)

Item	Score
2	_____
3	_____
8	_____
11	_____
16	_____
17	_____
25	_____
27	_____
33	_____
38	_____
40	_____
44	_____
46	_____
47	_____
48	_____
51	_____
53	_____

Total _____ ÷ 17 = ____

Factor: Personality Problem
(N=14)

Item	Score
5	_____
6	_____
9	_____
12	_____
14	_____
15	_____
21	_____
23	_____
28	_____
30	_____
32	_____
37	_____
39	_____
41	_____

Total _____ ÷ 14 = ____

Factor: Inadequacy--Immaturity
(N=8)

Item	Score
13	_____
20	_____
31	_____
34	_____
35	_____
42	_____
49	_____
50	_____

Total _____ ÷ 8 = ____

Factor: Socialized Delinquency
(N=6)

Item	Score
4	_____
10	_____
18	_____
26	_____
29	_____
36	_____

Total _____ ÷ 6 = ____

APPENDIX B

OBSERVATION INSTRUMENTS

Observer Trait Rating Form
Interaction Analysis

Teacher:_____ Observer:_____ School:_____

Date:_____ Time:_____ to _____ Other:_____

A	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
V	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
+	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
-	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
C	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
I	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
	A V + -	A V + -	A V + -	A V + -	A V + -	A V + -
Q						Q
C						C
I						I
D						D
C						C
I						I

DIRECTIONS: Each column represents an individual student - place each students' name on a column heading. Observe the students in the order you have them listed - left to right. Repeat the process until the space is exhausted or until the activity is complete. Each time you observe a student, tally (/) attending (A) or avoiding (V) task -- and if the students' affect is positive (+) or negative (-). Also, tally the number of teacher questions (Q) and directions (D) and student correct (c) or incorrect (I) responses. Box after Q and D are to tally questions and directions for entire group.

Attending and avoiding task are to be determined with reference to whether or not the student is complying with teacher expectations. Affect (+ or -) must be determined, primarily, by body language; i.e., smiling, laughing, 'loose' or frowning, hiding, 'up-tight'. If affect cannot be determined do not tally either (+ or -) category.

FLANDERS' INTERACTION ANALYSIS

TEACHER TALK	INDIRECT	1. ACCEPTS FEELING: accepts and clarifies the feeling the students in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.
		2. PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual; nodding head or saying "uh huh?" or "go on" are included.
		3. ACCEPTS OR USES IDEAS OF STUDENTS: clarifying, building, or developing ideas or suggestions by the students. (As teacher brings more of his own ideas into play, shift to category 5.)
		4. ASKS QUESTIONS. asking a question about content or procedure with the intent that a student answer.
	DIRECT	5. LECTURES: giving facts or opinion about content or procedure; expressing his own idea asking rhetorical question.
		6. GIVES DIRECTIONS: directions, commands, or orders with which a student is expected to comply.
		7. CRITICIZES OR JUSTIFIES AUTHORITY: statements intended to change student behavior from non-acceptable to acceptable pattern, bawling someone out; stating why the teacher is doing what he is doing, extreme self-reference.
STUDENT TALK		8. STUDENT TALK - RESPONSE: talk by students in response to the teachers. Teacher initiates the contact or solicits student statement.
		9. STUDENT TALK - INITIATION: talk by students, which they initiate. If calling on student in only to indicate who is to talk next, observer must decide if student wanted to talk. If he did, use this category.
		10. SILENCE OR CONFUSION: pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.

APPENDIX C

STUDENT RESPONSE INSTRUMENTS

"Faces"
"Reading For Concepts"

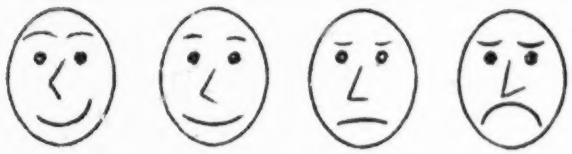
"FACES"

NAME:_____ DATE:_____

Here are some faces for you to mark with an "X" - like this There are happy faces (smiling) and there are unhappy faces (frowning). Mark the ones showing what you saw and how you felt about the reading lesson you just finished.

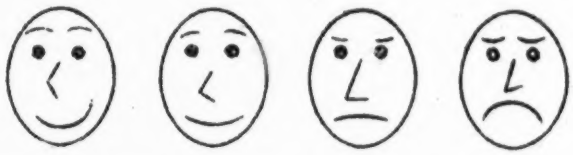
---

1. Mark the face that you saw most on your <u>teacher</u> during the reading lesson.



---

2. Mark the face that you saw most on <u>other pupils</u> during the reading lesson.



---

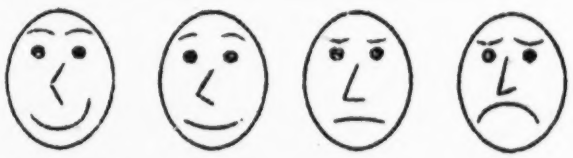
3. Mark the face that others saw most on <u>you</u> during the reading lesson.

---

4. Mark the face that shows how you felt about your <u>teacher</u> during the reading lesson.

---

5. Mark the face that shows how you felt about <u>other pupils</u> during the reading lesson.



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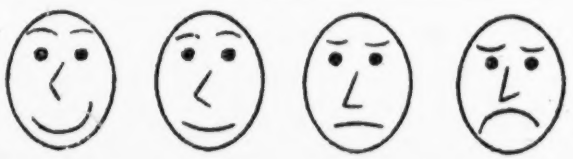
6. Mark the face that shows how <u>you</u> felt about the reading lesson.



T1-4 1 2 3 4 5 6 7 8 P2-5 1 2 3 4 5 6 7 8 S3 1 2 3 4 L6 1 2 3 4

Faces

Administration and Scoring

The Faces instrument was designed to measure affective perception or 'feeling state' of the Ss educational experience.

The instrument is a self-report, student completed measure. There is no time completion limitation; however, completion is to immediately follow the activity response to be assessed. A minimum reading level of 3.5 is required without oral directions.

The instructions are as follows:

"Here are some faces for you to mark with an "X" - like this There are some happy faces (smiling) and there are unhappy faces (frowning). Mark the ones showing what you saw and how you felt about the reading lesson you just finished."

The instructions are followed by six (6) statements; each statement is followed by four (4) faces with gradient expressions from smiling to frowning. The marked faces are scored 4, 3, 2, or 1, respectively. The total instrument response yields a score between six (6) and twenty-four (24). Lower scores indicate negative affect; higher scores indicate positive affect. The scores may be differentiated for 4 classroom components: teacher, peers, self, and lesson.

A Focused Interview (Faces) is recommended for concurrent validity assessment during the initial use of the Faces form.

READING FOR CONCEPTS

NAME:_____ _____TEACHER:_____

Book (Circle one) A B C D E F G H Page Number____Date_____

Title of Story:_____

Find the Answers

(Please answer the questions on this sheet. Thank you.)

1.

2.

3.

4.

5.

6.

7.

8.

(9.)

APPENDIX D

SUPPLEMENTAL DATA ANALYSIS

ANOVA of
Student Achievement: Written Text Responses
Student Achievement: Verbal Responses
Student Affective Perception: Observed Behavior
Student Affective Perception: Responses to "FACES" Form.

Multiple Correlations
Individual Student Scores on Five Group Assignment Instruments
Three Factors on the Behavior Problem Checklist

TABLE A-1

ANOVA of Student Achievement: Written Text Responses

Source	SS	df	MS	F	p
Teacher Style -- A	33.44	1	33.44	.59	NS
Student Development -- B	23.76	1	23.76	.42	NS
Interaction -- A x B	448.03	1	448.03	7.87	< .025
Error	910.87	16	56.93		
Total	1416.10	19			

TABLE A-2

ANOVA of Student Achievement. Verbal Responses

Source	SS	df	MS	F	p
Teacher Style -- A	112.10	1	112.10	2.78	NS
Student Development -- B	5.17	1	5.17	.13	NS
Interaction -- A x B	192.26	1	192.26	4.77	< .05
Error	644.71	16	40.29		
Total	954.25	19			

TABLE A-3

ANOVA of Student Affective Perception:
Observed Behavior

Source	SS	df	MS	F	p
Teacher Style - A	372.56	1	372.56	5.16	<.05
Student Development - B	18.93	1	18.93	.26	NS
Interaction - A x B	822.02	1	822.02	11.38	<.01
Error	1155.65	16	72.23		
Total	2369.16	19			

TABLE A-4

ANOVA of Student Affective Perception:
Responses to "FACES" Form

Source	SS	df	MS	F	p
Teacher Style - A	.73	1	.73	.42	NS
Student Development - B	.19	1	.19	.11	NS
Interaction - A x B	2.28	1	2.28	1.27	NS
Error	28.19	16	1.76		
Total	31.35	19			

TABLE A-5

Multiple Correlation: Individual Student Scores on Five Group Assignment Instruments (N=94)

	Peer Nominations	"Classroom Seating"	"Because"	Behavior Problem Checklist	Total
Teacher Ranking	.87	.70	.78	-.68	.91
Peer Nominations		.75	.77	-.51	.94
"Classroom Seating"			.69	-.35	.88
"Because				-.52	.83
Behavior Problem Checklist					.52

TABLE A-6

Multiple Correlation: Three* Factors on the Behavior Problem Checklist (N=94)

	Personality Problem	Inadequate-Immature	BPC (Total)
Conduct Problem	.56	.71	.77
Personality Problem		.88	.94
Inadequate-Immature			.97

*A fourth factor, socialized delinquent, was not included on the teacher completed form.